

# PLATE SEALS

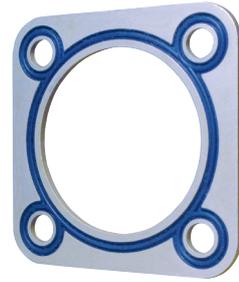


Plate seals are hybrid seals designed to incorporate the best features of flat gaskets and O-rings, concurrently eliminating drawbacks associated with each of those sealing methods.

Freudenberg plate seals typically use aluminum or steel carriers with a groove machined into the face and a rubber sealing bead molded into the groove. The two main types of plate seals are edge-bonded plate seals, used in unidirectional applications, and groove-bonded plate seals for bidirectional applications.

## GROOVE-BONDED PLATE SEALS

These plate seals have a metal or composite carrier with a seal groove machined in both sides of the carrier. An elastomeric sealing element is permanently molded into that groove, utilizing both a chemical and a mechanical bond.

## EDGE-BONDED PLATE SEALS

These seals consist of a metal or composite carrier that has the rubber sealing element molded to the edge of the carrier with a chemical bond.



## VALUES FOR THE CUSTOMER

The large selection of Freudenberg plate seals offers superior solutions for a wide range of sealing applications. Our plate seals provide many advantages over conventional flat gaskets and O-rings:

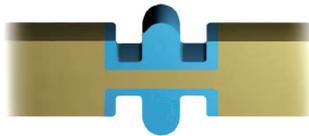
- Reduce expensive machining required on mating components
- Single plate/multi-port sealing capabilities reduce inventory, increase manufacturing productivity, and minimize warranty costs because of missing or poorly installed sealing elements
- Can reduce the amount of elastomer required, proving even more economical for high-cost elastomers
- Simplified installation with visual installation check
- Allows high pressure sealing without requiring backup rings
- Minimal flange preparation
- Narrow “line of contact” sealing for a limited area of fluid attack
- High extrusion resistance



## FEATURES AND BENEFITS

### GROOVE-BONDED PLATE SEALS FEATURES

The groove-bonded plate seal design is optimized to take full advantage of the sealing capabilities of the elastomer. The elastomer is completely contained in the groove and the squeeze and the volume/void ratio are optimized for each elastomer type and application condition. Groove-bonded seals are bidirectional seals and offer extra protection to the elastomer in highly corrosive environments. They provide superior extrusion resistance in high pressure applications.



Groove-bonded seals are used in:

- Extreme pressure applications
- Lower volume applications with metal retainers
- Higher volume applications with plastic retainers



### EDGE-BONDED PLATE SEALS FEATURES

The edge-bonded plate seal retains many of the advantages of groove-bonded plate seals, such as controlled squeeze and metal-to-metal contact. The main advantage of the edge-bonded design is the ability to stamp the metal retainers, which reduces the manufacturing cost for high-volume applications. Edge-bonded seals are typically unidirectional seals, with the elastomer on the high pressure side and the retainer on the lower pressure side. The retainer onto which the seal is molded may be any metal, and even some composite materials. The sealing element can consist of virtually any elastomeric compound, even polyurethane.



Typical Applications for Edge-Bonded (EPB) Plate Seals:

- Unidirectional applications
- High-volume applications
- Applications with less-critical performance requirements
- Applications where incorporating multiple sealing functions can result in lower costs
- Compared to O-rings, die-cut seals, and cure-in-place seals, edge-bonded plate seals offer superior performance in these fundamental areas:\* controlled squeeze, resilience, alternate load path, confinement, and volume-to-void ratio.

\*where space limitations prevent use of a groove-bonded design.

The information contained herein is believed to be reliable, but no representation, guarantees or warranties of any kind are made to its accuracy or suitability for any purpose. The information presented herein is based on laboratory testing and does not necessarily indicate end product performance. Full scale testing and end product performance are the responsibility of the user.

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